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Soil Survey Reports

RECREATIONAL AND WILDLIFE DEVELOPMENT

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Introduction

This bulletin is one of a series dealing with the use of soil survey information for wise resource management. If you are unfamiliar with the type of information included in a soil survey report or with how to locate a parcel of land on the soil maps, please refer to *Soil Survey Reports: Using Available Information (E-1586)*, or refer to the inside cover of a soil survey report printed after 1978. Bulletins dealing with soil survey information for other uses are available from your local Cooperative Extension Service office.

The Ingham County Soil Survey Report has been used as an example soil survey report throughout this series of bulletins. For definitions of unfamiliar terms, consult the glossary of technical terms found in the soil survey report.

Public officials, resource managers, and recreation developers use information in a soil survey report for planning and managing recreational and wildlife areas. These two land uses will be presented jointly because of their compatibility and because they commonly occur together.

Recreation

The ratings of soils for recreational uses are based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer. Not considered in these ratings, but also important in evaluating a site, are location and accessibility of the area, size and shape of the area and its scenic quality, ability of the soil to support vegetation, access to water, potential water impoundment sites, and access to public sewer lines or capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying degree, for recreational use by the duration and intensity of flooding and the season when flooding occurs. Onsite assessment of height, duration, intensity and frequency of flooding is essential in planning recreational facilities.

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The degree of the limitation of the soils is expressed as slight, moderate, or severe. *Slight* means that the soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that the limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information for recreational development can be supplemented by information in other parts of the survey. Especially helpful are interpretations for septic tank absorption fields, dwellings without basements, and local roads and streets.

Camp areas require such site preparation as shaping and leveling for tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils for this use have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can increase greatly the cost of constructing camping sites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for use as picnic areas are firm when wet, not dusty when dry, not subject to flooding during the period of use, and do not have slopes, stones or boulders that will increase the cost of shaping sites or building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones or boulders, firm after rains, and not dusty when dry. If shaping is required to obtain a uniform grade, the depth of the soil over bedrock should be enough to allow necessary grading.

Paths and trails for walking, horseback riding, bicycling, and other uses should require little or no cutting and filling. The best soils for this use are those that are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once during the annual period of use. They should have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, not dusty when dry, and not subject to prolonged flooding during the period of use. They should have surfaces that are free of stones and boulders and have moderate slopes. Suitability of the soil for traps, tees, or greens was not considered in rating the soils. Irrigation is an assumed management practice.

Wildlife Habitat

Soils directly affect the kind and amount of vegetation available to wildlife as food and cover and the construction of water impoundments. The kind and abundance of wildlife that populate an area depend largely on the amount and distribution of food, cover, and water. If any one of these elements is missing, inadequate, or inaccessible, wildlife either are scarce or do not inhabit the area.

If the soils have the potential, wildlife habitat can be created or improved by planting appropriate vegetation, maintaining the existing plant cover, or helping the natural establishment of desirable plants.

The soils in the survey area are rated according to their potential to support the main kinds of wildlife habitat in the area. This information can be used in activities, such as: 1) Planning for parks, wildlife refuges, nature study areas, and other developments for wildlife; 2) selecting areas that are suitable for wildlife; 3) selecting soils that are suitable for creating, improving, or maintaining specific elements of wildlife habitat; and 4) determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* means that the element of wildlife habitat or the kind of habitat is easily created, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected if the soil is used for the designated purpose. A rating of *fair* means that the element of wildlife habitat or kind of habitat can be created, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* means that limitations are severe for the designated element or kind of wildlife habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* means that restrictions for the element of wildlife habitat or kind of wildlife are very severe and unsatisfactory results can be expected. Wildlife habitat is impractical or even impossible to create, improve, or maintain on soils having such a rating.

The elements of wildlife habitat are briefly described in the following paragraphs:

Grain and seed crops are seed-producing annuals used by wildlife. The major soil properties that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes that are planted for wildlife food and cover. Major soil properties that affect the growth of grasses and legumes are depth of root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds, that provide food and cover for wildlife. Major soil properties that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are goldenrod, beggarweed, and wheatgrass.

Hardwood trees and the associated woody understory provide cover for wildlife and produce nuts or other fruit, buds, catkins, twigs, bark, or foliage that wildlife eat. Major soil properties that affect growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of native plants are oak, cherry, apple, hawthorn, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are commercially available and suitable for planting on soils rated good are Russian-olive, autumn olive, and crabapple.

Coniferous plants are cone-bearing trees, shrubs, or ground cover plants that furnish habitat or supply food in the form of browse, seeds, or fruitlike cones. Soil properties that have a major effect on the growth of coniferous plants are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites, exclusive of submerged or floating aquatics. They produce food or cover for wildlife that use wetland as habitat. Major soil properties affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, reed canarygrass, cattails, and rushes, sedges and reeds.

Shallow water areas are bodies of water that have an average depth of less than five feet and are useful to wildlife. They can be naturally wet areas, or they can be created by dams, levees or water-control structures in marshes or streams. Major soil properties affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope and permeability. The availability of a dependable water supply is important if water areas are to be developed. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The kinds of wildlife habitat are briefly described in the following paragraphs:

Openland habitat consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas includes bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, rabbit, and red fox.

Woodland habitat consists of areas of hardwoods or conifers, or a mixture of both, and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas includes ruffed grouse, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Wetland habitat consists of open, marshy or swampy, shallow water areas where water-tolerant plants grow. Wildlife attracted to such areas includes ducks, geese, herons, shore birds, muskrat, mink, and sandhill cranes.

An example area from Ingham County has been evaluated for some recreational uses in Table 1-A. In Table 1-B you may evaluate an area of your choice. An example of a single use suitability map of the study area is found in Figure 1 where the area has been evaluated for potential camp sites.

Table 1-A. Recreational Development

Soil Map Symbol	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Au	Severe: wetness, excess humus	Severe: floods, wetness, excess humus	Severe: wetness, excess humus	Severe: floods, wetness excess humus
SnB	Slight slope	Moderate	Slight	Slight

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Table 1-B. Recreational Development
Personal Example

Soil Map Symbol	Picnic areas	Play-grounds	Paths and trails	Golf fairways

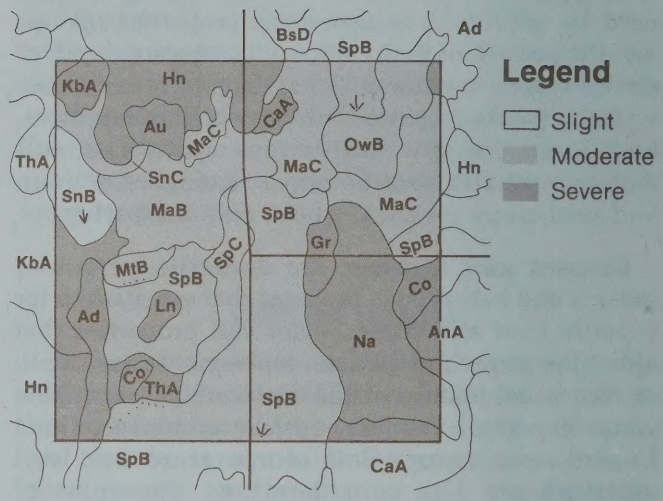

Fig. 1. Camp site suitability map.

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